

# Coastal Observation Technology System Project Summary – 2004

**Project Name/Title:** Center for Integrated Marine Technologies (CIMT)

**Date Project Initiated:** July 2002

**Recipient Institutions:** University of California Santa Cruz (UCSC); Moss Landing Marine Laboratories (MLML); Naval Postgraduate School (NPS); Monterey Bay Aquarium Research Institute (MBARI); Southwest Fisheries Science Center (SWFSC), National Marine Fisheries Service (NMFS); National Oceanic and Atmospheric Administration (NOAA)

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**Project Web Site:** <http://cimt.ucsc.edu>

**Brief Project Summary:** The mission of the Center for Integrated Marine Technologies (CIMT) is to create a coastal ocean monitoring program that links new technologies and data across disciplines of marine science to address key questions for the management and conservation of California coastal marine resources.

Specifically, CIMT is using these technologies to investigate the critical linkages between detailed physical oceanographic measurements of upwelling with assessments of the availability of critical nutrients to determine the extent to which these predict the distribution, abundance, and species composition of phytoplankton and zooplankton, and the distribution, abundance, and species composition of top-level consumers including fish, seabirds, marine mammals, and sea turtles.

This comprehensive interdisciplinary approach will serve as a model for an integrated coastal ocean observing system and establish the scientific basis for the effective monitoring and management of coastal fisheries and protected resources, especially those of the Monterey Bay National Marine Sanctuary.

**Accomplishments to Date:**

- California Department of Health Services (CDHS) Biotoxins Program receives and uses population abundance and toxin analysis information of toxic algal species from CIMT.
- CIMT has made the California State Crime Lab aware of toxic algal species and has provided them with toxic algal species data and analysis.
- Development of “rapid-response” remote sensing products with Dr. Richard Stumpf (NOAA) for the identification of potential HAB problems in California. Information reported directly to CDHS.

- Partnership of CIMT and Sanctuary Integrated Monitoring Network (SIMoN), Monterey Bay National Marine Sanctuary (MBNMS). CIMT data will be used by the MBNMS staff to inform management decisions.
- Working relationships developed with the Channel Islands, Gulf of the Farallones, and Cordell Banks National Marine Sanctuaries and the Point Reyes Bird Observatory in adapting methodology and equipment to help in future management decisions.
- Direct collaboration with the developing regional Integrated Ocean Observation System (IOOS) the Central and Northern California Ocean Observation System (CeNCOOS).
- CIMT acted as the Regional Data Center for the Central California coast while participating in the NOAA IOOS Interoperability Demonstration to create Web-accessible maps of hourly sea surface temperatures.
- As a direct result of CIMT, researchers now know how variable toxic bloom areas are (where very high populations can be in one area and not in another).
- Instrumentation and support (calibration, interpretation) for the permanent equipment added to the *R/V John Martin* is available to other entities and is now being used, with CIMT support, by the City of Watsonville, California, as part of its monitoring efforts.
- CIMT is providing local support, dissemination, and validation for remote sensing (ocean color) products in collaboration with NOAA (Dr. Richard Stumpf), Pacific Fisheries Environmental Laboratory (PFEL), and the Tagging of Pacific Pelagics (TOPP) program coordinated by Dr. Barbara Block (Stanford). This partnership includes public access to these data, dissemination to resource managers, and outreach activities (including partnership with the Monterey Bay Aquarium).

#### **Current Year Objectives:**

- The CIMT Web site, <http://cimt.ucsc.edu>, will undergo construction to better incorporate end-user needs.
- CIMT animation with the intention of being used in an educational setting such as the Seymour Marine Discovery Center.
- A proposal to the Monitoring and Event Response for HABs (MERHAB) program at NOAA is being recommended for funding. This five-year program (Peter Miller, principle investigator, or PI; Raphael Kudela and Mary Silver, Co-PIs—all members of CIMT; Gregg Langlois, CDHS, co-PI) will provide a mechanism for evaluation and integration of new technologies, including volunteer monitoring, molecular tools, and remote sensing, that are being tested as part of CIMT, into the statewide harmful algal bloom (HAB) monitoring program.

**Partners:** Dr. Gary Griggs, Project Chair, UCSC; Dr. Don Croll, Ship Survey, UCSC; Dr. Raphe Kudela, Remote Sensing and Modeling, UCSC; Dr. Margaret McManus, Database and Visualization, UCSC; Dr. Jeff Paduan, HF Radar, NPS; Dr. Francisco Chavez, Mooring, MBARI; Dr. Steve Lonhart, Outreach, MBNMS; Dr. Ken Bruland, UCSC; Dr. Mary Silver, UCSC; Dr. Dan Costa, UCSC; Dr. Baldo Marinovic, UCSC; Dr. John Vesecky, UCSC; Dr. Chris Edwards, UCSC; Dr. Leslie Rosenfeld, NPS; Dr. Jim Harvey, MLML; and Dr. Scott Benson, SWFSC, NMFS.